Lat 40.27624 Lon -121.80406

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Subject: Barkley Fire Administrative Study - Marking Guidelines For Fire Injured Trees

To: District Ranger, Almanor Ranger District

This summary documents progress to date on the administrative study implemented to monitor the longevity of fire damaged trees in the Barkley fire area, Almanor Ranger District, July 1995. The objective of this study is to evaluate, document and monitor the survivability of trees marked according to Wagener's guidelines (Wagener, 1961) over a minimum of four years.

The trees were originally selected September 20, 1995. Fifty trees were selected in Unit 7 and 25 trees were selected Units 3 and 4 (combined) for this study (59 ponderosa pine and 16 sugar pine trees). The condition of the trees when chosen for monitoring can be summarized as follows:

Units 3, 4 and 7:

Sugar Pine: Height ranged from 71 to 142 ft.
DBH ranged from 14.9 to 43.4 in.
Total crown as a percentage of height from 44.6 to 89.4%.
Crown scorch as a percentage of total crown from 0 to 73.3%

Ponderosa Pine: Height ranged from 69 to 135 ft.
DBH ranged from 11.6 to 41.9 in.
Total crown as a percentage of height from 42.3 to 92.9%.
Crown scorch as a percentage of total crown from 0 to 82.6%

Sheri Smith, entomologist and Robin Petersen, biologist, Forest Pest Management, monitored the trees on July 17, 1996. Nine ponderosa pine trees had died in unit 7 (Table 1.). The DBHs ranged from 15.1 to 43.4 and percent crown scorch from 11 to 63 percent. Six of these nine trees were successfully attacked by western pine beetle. The condition of the remaining live trees were as follows: 3 trees had dropped their scorched needles, 8 had been attacked by bark beetles and 30 trees exhibited no change.

Two ponderosa pine trees died in units 3 and 4 (Table 1.). Their DBHs are 26.5 and 18.5 and they had 28% and 62% crown scorch, respectively. Red turpentine beetle attacks were present on both trees when the study was initiated. The condition of the remaining live trees were as follows: 2 trees had been attacked by bark beetles, 5 trees had pouch fungus and wood borers associated with the areas of scorched bark/dead cambium and 16 trees exhibited no change.

Over two years have passed since the Barkley fire so it is likely that most mortality directly related to fire injuries (crown and cambium kill) has already occurred. Future mortality is more likely to involve bark beetles attacking trees that are more susceptible due to their fire injuries rather

that from fire injuries alone. Forest Pest Management will continue to monitor the survivability of the trees included in this study to validate the use of Wageners marking guidelines and to provide additional information on the effects of drought, combined with fire injuries and bark beetle-related damage, on tree survivability.

Please call Sheri Smith or Robin Petersen if you have any questions regarding this progress report (916) 257-2151.

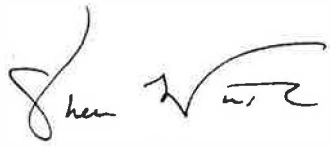

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Table 1. Barkley Fire Administrative Study

Post-Fire Dead Tree Data								
Tree #	Unit #	Species	Height (FT.)	DBH (IN.)	% Live Crown (pre-fire)	% Crown Kill	Bark Beetle Attacks	Comments
5	7	PP	130	41.1	62%	63%	no	Predicted to die based on crown kill.
6	7	PP	135	43.4	76%	55%	RTB	Predicted to die based on crown kill.
10	7	PP	110	23.3	86%	58%	yes	Predicted to die based on crown kill.
32	7	PP	102	18.9	69%	63%	yes	Predicted to die based on crown kill.
36	7	PP	130	27.9	45%	45%	yes	Successful WPB attacks.
37	7	PP	124	21.6	60%	28%	yes	Successful WPB attacks.
42	7	PP	93	18.4	73%	25%	yes	Successful WPB attacks.
43	7	PP	95	15.1	68%	11%	yes	Successful WPB attacks.
45	7	PP	106	24.6	71%	55%	no	Predicted to die based on crown kill.
1	4	PP	93	26.5	57%	28%	RTB	Extensive cambium kill.
2	4	PP	78	18.5	77%	62%	RTB	Predicted to die based on crown kill.